

Docket No.: N3236.0040
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Wataru Itonaga

Application No.: 10/602,680

Confirmation No.: 1357

Filed: June 25, 2003

Art Unit: 2154

For: SHARED CACHE SERVER

Examiner: D. Nguyen

PRE-APPEAL BRIEF REQUEST FOR REVIEW

MS AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

INTRODUCTORY COMMENTS

Applicant respectfully requests a review of the legal and factual bases for the rejections in the above-identified patent application. Pursuant to the guidelines set forth in the Official Gazette Notice of July 12, 2005, for the Pre-Appeal Brief Conference Program, as extended by Official Gazette Notice of February 7, 2006, favorable reconsideration of the subject application is respectfully requested.

Claims 1-18 pending in the application have been twice rejected, most recently in a Final Office Action mailed December 12, 2007 (the "Office Action"). A copy of these claims are annexed to this Brief for the reviewer's convenience. In particular, claims 1, 4-8, 10, and 13-17 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 6,597,956 to Aziz et al. ("Aziz") in view of U.S. Patent No. 7,096,266 to Lewin et al. ("Lewin"). Claims 2-3, 9, 11-12, and 18 are rejected

under 35 U.S.C. § 103(a) over Aziz in view of Lewin and further in view of U.S. Patent No. 6,996,616 to Leighton et al. ("Leighton").

Aziz does not disclose a storage device that stores contents in separate areas per group

Claims 1, 9-10 and 18 are independent. Each of the independent claims recite "a storage device to store contents in each of a plurality of storage areas [allocated] corresponding to said plurality of groups." As fully explained in Applicant's November 7, 2007 Response, Aziz fails to teach these limitations. Aziz Figure 9 shows Farm Managers in a control plane 902 that control and manage computing, network and storage elements, known as virtual server farms (VSFs), contained in a Computing Grid 904. *See* column 14, lines 19-28. Aziz's VSFs do not accommodate a *shared* cache server with "a plurality of storage areas allocated corresponding to said plurality of groups," as required by the claims. Instead, Aziz teaches that a VSF is committed to a single group. The Farm Managers establish, configure and maintain VSFs on the computer grid. Nothing in Aziz indicates that the VSF is acting as a storage device that stores contents "in each of a plurality of storage areas allocated corresponding to said plurality of groups." Indeed, Aziz is silent as to the configuration of storage in any of the VSFs. Aziz shows that a Farm Manager establishes and manages a VSF, or that multiple Farm Managers establish and manage multiple VSFs. Aziz is silent on any shared storage configuration of any VSFs. At best, one VSF is allocated per group. Thus, for the reasons laid out in the November Response and above, Aziz fails to show "a storage area to store contents in each of a plurality of storage areas allocated corresponding to said plurality of groups," as required by independent claims 1, 9-10 and 18. As nothing in Lewin or Leighton cures the deficiency of Aziz as applied to the independent claims, Applicant urges that independent claims 1, 9-10, and 18 are presently in condition for allowance and urge reconsideration and withdrawal of the rejections thereto.

Aziz does not disclose separate virtual network interfaces per group

In addition, independent claims 1 and 10 recite, "a plurality of virtual [network] interfaces . . . to correspond to said plurality of virtual networks." As recited in the preamble, each

of the virtual networks corresponds to a group in the plurality of groups. The Office Action cites Figure 9 and accompanying text that describes a “control plane [that] performs control actions on the computing grid through special control ports or interfaces.” Neither the control plane, nor the control ports or interfaces disclose the claimed virtual interfaces claimed by independent claims 1 and 10. As recited in the claims, each interface corresponds “to a group in the plurality of groups.” The control ports or interfaces in Aziz have no such correspondence. In the absence of any disclosure of this feature of the claimed invention, Applicant believes claims 1 and 10 are patentable over the cited art of reference.

Lewin does not disclose reading contents from a storage area based on an internal address corresponding to a virtual interface

Independent claim 1 recites the limitations of converting “part of an Internet Protocol (IP) address contained in said packet to an internal address corresponding to a virtual interface having received said [request] packet” and “based on [the] internal address . . . read[ing] contents from a corresponding storage area of said storage device.” Claim 10 recites similar limitations.

The Office Action cites Lewin, Fig. 3A and accompanying text describing a network address translation (NAT) feature. However, Lewin only discloses a single group, the enterprise served by the content distribution network (CDN). The content requested by a group member is served by content servers maintained within the firewall of the single group. As disclosed in Lewin, a NAT compatible firewall PUB-PRI “rewrites packets with destination 10.0.0.x [*i.e.*, a private address known only to the group] originating on the private side [*i.e.*, within the group’s firewall] to packets with corresponding 64.0.0.x addresses [of the content servers] on the public side and itself as the source, and vice versa.” Lewin, col. 9, ll. 49-52. Notably, the addresses converted correspond to the public and private addresses of the content servers, not “a virtual interface having received said packet [requesting the contents].” In addition, the contents are read from a content server maintained by the CDN, not from “a corresponding storage area of said storage device,” as required by the claims. In the absence of any disclosure of these claimed features of the invention, Applicant believes claims 1 and 10 are patentable over the cited art of reference.

Leighton does not disclose reading contents from a storage area based on a URL having an inserted tag converted from an IP address contained in a request packet

Independent claim 9 recites the limitations of converting “part of an Internet Protocol (IP) address contained in said [request] packet to a tag corresponding to said group and to insert said tag into said Uniform Resource Locator (URL),” and “read[ing] contents from a storage area of said storage device based on said Uniform Resource Locator (URL) into which said tag has been inserted.” Claim 18 recites similar limitations.

The Office Action cites Leighton, col. 3, ll. 48-51, 59-64 and col. 5, ll. 1-10. The Office Action states that Leighton discloses that URLs may be modified to point to the CDN. But this is not the claimed limitation. Leighton does not disclose a tag converted from an IP address of a packet requesting the contents as recited in claim 9. Instead, a domain name server resolves the URL to an IP address of a CDN server. The CDN server in turn replaces the domain name of the host in the URL of the request (www.customer.com) with an alternative host domain name (html.customer.com). *See* Leighton, Fig. 3. The IP address of the requesting packet is never considered.

Furthermore, like Lewin, Leighton does not disclose more than a single group. Thus, Leighton cannot disclose reading “contents from a storage area of said storage device” based on the tag, which corresponds to the group. Leighton provides no disclosure that the contents are read from a group’s storage area on the storage device, as required by the claims. Instead, the contents are read from a content provider’s source server, for which there is no disclosure that storage is allocated on a per group basis. For at least these additional reasons, Applicant believes claims 9 and 18 are patentable over the cited art of reference.

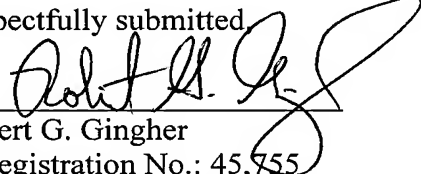
Claims 2-8 and 11-17 respectively depend from independent claims 1 and 10 and include all the limitations found therein, and therefore allowable for the same reasons. In addition, these claims recite additional limitations which, in combination with the limitations of the claims from

which they depend, are not disclosed or suggested in the art of record. Accordingly, claims 2-8 and 11-17 are likewise patentable.

In view of the foregoing, favorable reconsideration of the claims and allowance of the present application is respectfully and earnestly solicited.

Dated: April 14, 2008

Respectfully submitted,

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LISTING OF THE CLAIMS

1. (Original) A shared cache server being placed on a common network in which a plurality of virtual networks each being placed in a virtually partitioned manner is constructed corresponding to a plurality of groups, comprising:

a storage device to store contents in each of a plurality of storage areas allocated corresponding to said plurality of groups;

a plurality of virtual interfaces being placed in a manner to correspond to said plurality of virtual networks;

an address converting function section, when receiving a packet requesting for contents with a Uniform Resource Locator (URL) designated through one of said virtual interfaces, converts part of an Internet Protocol (IP) address contained in said packet to an internal address corresponding to a virtual interface having received said packet; and

a cache function section, based on an internal address converted by said address converting function section, reads contents from a corresponding storage area of said storage device.

2. (Original) The shared cache server according to Claim 1, further comprising a tag inserting function section to convert said internal address to a tag corresponding to said group and to insert said tag into said Uniform Resource Locator and wherein said cache function section designates contents based on said Uniform Resource Locator into which said tag is inserted.

3. (Original) The shared cache server according to Claim 2, wherein said tag inserting function section converts, for a packet with a specified Uniform Resource Locator designated, said internal address to a specified tag being used commonly in said group.

4. (Original) The shared cache server according to Claim 1, further comprising a storage capacity managing function section to manage storage capacity in a storage area in every said group.

5. (Original) The shared cache server according to Claim 4, wherein said storage capacity managing function section dynamically manages said storage area in every said group.

6. (Original) The shared cache server according to Claim 1, further comprising a Domain Name System (DNS) proxy function section to designate a server in which contents are stored when contents designated by said packet are not stored in said storage device.

7. (Original) The shared cache server according to Claim 1, wherein said plurality of virtual networks each being placed in a partitioned and virtual manner is constructed in accordance with IEEE 802.1Q.

8. (Original) The shared cache server according to Claim 1, wherein said plurality of virtual networks each being placed in a virtually partitioned manner is constructed in accordance with MPLS Multi Protocol Label Switching (MPLS) technology.

9. (Original) A shared cache server being placed on a common network connected to a plurality of groups each having an Internet Protocol address range to be used being different from one another, comprising:

a storage device to store contents in each of a plurality of storage areas corresponding to said plurality of groups; and

a cache function section to convert, when receiving a packet requesting for contents with a Uniform Resource Locator (URL) designated, part of an Internet Protocol (IP) address contained in said packet to a tag corresponding to said group and to insert said tag into said Uniform Resource Locator (URL) and to read contents from a storage area of said storage device based on said Uniform Resource Locator (URL) into which said tag has been inserted.

10. (Original) A shared cache server being placed on a common network in which a plurality of virtual networks each being placed in a virtually partitioned manner is constructed corresponding to a plurality of groups, comprising:

a storage device to store contents in each of a plurality of storage areas allocated corresponding to said plurality of groups;

a plurality of virtual interfaces being placed in a manner to correspond to said plurality of virtual networks;

an address converting means, when receiving a packet requesting for contents with a Uniform Resource Locator (URL) designated through one of said virtual interfaces, converts part of an Internet Protocol (IP) address contained in said packet to an internal address corresponding to a virtual interface having received said packet; and

a cache means, based on an internal address converted by said address converting means, reads contents from a corresponding storage area of said storage device.

11. (Original) The shared cache server according to Claim 10, further comprising a tag inserting means to convert said internal address to a tag corresponding to said group and to insert said tag into said Uniform Resource Locator and wherein said cache means designates contents based on said Uniform Resource Locator into which said tag is inserted.

12. (Original) The shared cache server according to Claim 11, wherein said tag inserting means converts, for a packet with a specified Uniform Resource Locator designated, said internal address to a specified tag being used commonly in said group.

13. (Original) The shared cache server according to Claim 10, further comprising a storage capacity managing means to manage storage capacity in a storage area in every said group.

14. (Original) The shared cache server according to Claim 13, wherein said storage capacity managing means dynamically manages said storage area in every said group.

15. (Original) The shared cache server according to Claim 10, further comprising a Domain Name System (DNS) proxy means to designate a server in which contents are stored when contents designated by said packet are not stored in said storage device.

16. (Original) The shared cache server according to Claim 10, wherein said plurality of virtual networks each being placed in a virtually partitioned manner is constructed in accordance with IEEE 802.1Q.

17. (Original) The shared cache server according to Claim 10, wherein said plurality of virtual networks each being placed in a virtually partitioned manner is constructed in accordance with MPLS Multi Protocol Label Switching (MPLS) technology.

18. (Original) A shared cache server being placed on a common network connected to a plurality of groups each having an Internet Protocol address range to be used being different from one another, comprising:

a storage device to store contents in each of a plurality of storage areas corresponding to said plurality of groups; and

a cache means to convert, when receiving a packet requesting for contents with a Uniform Resource Locator (URL) designated, part of an Internet Protocol (IP) address contained in said packet to a tag corresponding to said group and to insert said tag into said Uniform Resource Locator (URL) and to read contents from a storage area of said storage device based on said Uniform Resource Locator (URL) into which said tag has been inserted.